Dear Medical Students,

We welcome your interest in the Cleveland Clinic Glickman Urological & Kidney Institute’s Urology Residency Training Program. Ours is a six-year program integrating one year of pre-specialty training, one year of research and four years of clinical urology training. This brochure provides an overview of our program as well as information about living in the Cleveland area.

All institute members are committed to maintaining an academic environment that fosters the best possible graduate urologic training. Our residency training program offers a variety of challenging clinical experiences as well as numerous opportunities for basic and clinical research. The Glickman Urological & Kidney Institute’s collegial atmosphere and ample support staff enable residents to balance clinical and investigative training with family and personal interests outside the hospital.

Urology is a rapidly advancing specialty, and the Glickman Urological & Kidney Institute is at the forefront of progress, with strong programs in all of the subspecialty areas. We believe that our residency program is among the best and that it will enable our graduates to take their place among tomorrow’s leaders in clinical and investigative urology.

Sincerely,

Steven Campbell, MD
Director, Urology Residency Training Program

Drogo K. Montague, MD
Associate Director,
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Associate Director,
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Founded in 1921, Cleveland Clinic is a nonprofit, multispecialty academic medical center that integrates clinical and hospital care with research and education. Today, 2,000 physicians and scientists practice in 120 medical specialties and subspecialties, annually recording about 3.7 million patient visits and more than 79,000 surgeries.

Cleveland Clinic's main campus on 180 acres in Cleveland, Ohio, includes a 1,300-bed hospital, an outpatient clinic, a research institute, specialty institutes, and supporting labs and facilities. Cleveland Clinic also operates 17 family health centers, nine community hospitals, a children’s hospital for rehabilitation and one affiliate hospital in Ohio; a 150-bed hospital and clinic in Weston, Fla.; a center for brain health in Las Vegas; and health and wellness centers in West Palm Beach, Fla., and Toronto, Canada. Cleveland Clinic Abu Dhabi (United Arab Emirates), a multispecialty care hospital and clinic, is scheduled to open in late 2012.

The Lerner Research Institute is home to all laboratory-based, translational and clinical biomedical research at Cleveland Clinic. Within 650,000 total square feet of research space, more than 1,200 scientists and support personnel collaborate with clinical researchers to unravel the mysteries of disease. It is one of the leading NIH-funded research institutes in the nation.

Our founding fathers’ dedication to training future generations of physicians continues today. About 900 residents and fellows are involved in patient care at Cleveland Clinic. In 2004, Cleveland Clinic Lerner College of Medicine of Case Western Reserve University opened. The first students in the program graduated as physician-scientists in 2009. In 2008, Cleveland Clinic was redesignated as a Magnet® status hospital, the most sought-after indicator of nursing excellence, by the American Nurses Credentialing Center. Hospitals that achieve Magnet status are recognized for providing the highest standard of nursing care and excellence.

In 2007, Cleveland Clinic restructured its practice, bundling all clinical specialties into integrated practice units called institutes. An institute combines all the specialties surrounding a specific organ or disease system under a single roof. Each institute has a single leader and focuses the energies of multiple professionals onto the patient. From access and communication to billing and point-of-care service, institutes are improving the patient experience at Cleveland Clinic.

And the quality of medical care at Cleveland Clinic has been recognized repeatedly. Every year since 1990, U.S. News & World Report has named Cleveland Clinic one of the nation’s best hospitals in its “America’s Best Hospitals” survey. Since 2000, U.S. News has designated Cleveland Clinic’s urology program as one of the top two urology programs in the United States.
The Cleveland Clinic Glickman Urological & Kidney Institute's urology program has a professional staff of 75 physicians and scientists representing all subspecialties of urology and composing the largest full-time urology faculty in the United States.

Residents participate in all aspects of patient care in general and subspecialty urology from outpatient evaluation in clinics to office surgical procedures to inpatient and outpatient surgery to postoperative care. A large staff of physician assistants and nurse practitioners is available to handle noneducational patient responsibilities during the day.

In the fall of 2008, the Glickman Urological & Kidney Institute moved into the newly built Glickman Tower. At 12 stories, the tower is the tallest building on Cleveland Clinic’s main campus. Its 200,000 square feet contain 77 physician offices, 16 technologically sophisticated procedure rooms, 12 outpatient procedure rooms and 74 exam rooms. An auditorium is fully equipped with technology for telemedicine and videoconferencing.

The 21-bed dialysis unit is designed with floor-to-ceiling windows offering scenic views of the outdoors. The tower also features a chapel and meditation room. A four-story grand hall features artwork, a café and an educational health resource center for patients.
Cleveland Clinic is approved for five years of clinical training, with one year of general surgery and four years of urology training. In addition, one year is spent developing skills in basic urological research. Five residents are appointed each year. There is an emphasis on clinical and operative urology, with residents pursuing a diversity of specialties within urology upon completion of the training program. During the last 10 years, two-thirds of our residents have pursued competitive fellowships, with half of all graduates going on to academic careers.

### Residency Training Program

**Graduate Level I (Year 1)**
- 7 months general surgery
- 1 month general urology
- 1 month renal transplantation
- 1 month emergency medicine
- 1 month surgical intensive care
- 1 month nephrology

**Graduate Level II (Year 2)**
- 1 month urologic oncology
- 2 months endourology
- 2 months prosthetics/reconstructive urology
- 1 month pediatric urology
- 1 month laparoscopic urology
- 1 month female urology and voiding dysfunction
- 1 month infertility/outpatient urology
- 2 months inpatient consults

**Graduate Level III (Year 3)**
- 3 months urologic oncology
- 1 month endourology
- 1 month prosthetics/reconstructive urology
- 1 month renal transplantation
- 1 month pediatric urology
- 1 month laparoscopic urology
- 1 month female urology and voiding dysfunction
- 1 month infertility/outpatient urology
- 1 month inpatient consults

**Research Resident (Year 4)**

Basic and translational urological research with no clinical responsibilities. Didactic research course throughout the year run by Daniel Shoskes, MD, and Matthew Simmons, MD, PhD, covering such areas as basic and advanced statistics, experimental design, clinical trial design, how to write a grant/abstract/paper, how to give presentations at meetings, and a basic science journal club.

**Graduate Level IV (Year 5)**
- 5 months urologic oncology
- 2 months renal transplantation
- 1 month pediatric urology
- 1 month laparoscopic urology
- 1 month female urology and voiding dysfunction
- 1 month infertility/outpatient urology

**Graduate Level V (Year 6)**

Chief resident year with primarily operative, administrative and educational responsibilities as well as supervision of inpatient services.

### Teaching Conferences
- Chief Residents’ Conference – Weekly
- Didactic Conference – Biweekly
- Morbidity and Mortality Conference – Monthly
- Oncology Multidisciplinary Conference – Monthly
- Patient Management Conference – Weekly
- Journal Club – Monthly
From the first day after internship, residents are entrusted with independently running their own inpatient services tailored to a subspecialty of urology. Residents work directly with faculty in a preceptor model to learn management of urologic disorders in an inpatient setting and outpatient clinics. Residents at each level participate in the operating room three to four days per week, with emphasis on endourology and male genital surgery at junior levels and on open and laparoscopic oncologic and reconstructive surgery at senior levels. Chief residents focus on refining operating skills in preparation for fellowship and practice, and shoulder administrative and educational responsibilities for the residency program.

On-call duties require GL2 residents to spend three nights per month and GL3 residents to spend two to three weeknights per month in the hospital. GL4 research residents are free from all clinical responsibilities. GL5 residents have one in-house call per month. The four chief residents rotate weekly as the supervising/backup house officer.
Scope of Urology Services

The Cleveland Clinic Glickman Urological & Kidney Institute provides a wide range of adult and pediatric urological services. About 16 percent of our patients come from outside of Ohio, and patients from many countries throughout the world are frequently seen throughout Cleveland Clinic. In addition to providing general adult and pediatric urological services, the institute also provides many highly specialized tertiary care services, described in more detail in the following pages.

Urologic Oncology

**Renal cancer** – The majority of the radical nephrectomies performed at Cleveland Clinic are performed laparoscopically. A number of open radical nephrectomies with vena caval thrombectomy are performed each year in conjunction with cardiothoracic surgery. Our institute has the largest experience of partial nephrectomy in the world. The scope of nephron-sparing surgery is further expanded by our extensive experience in laparoscopic and percutaneous cryoablation of renal tumors.

**Prostate cancer** – Our prostate cancer training experience is unique because it offers expertise in all forms of therapy for men with localized disease — open, laparoscopic, and robotic radical prostatectomy; focal, subtotal, and whole gland cryotherapy; brachytherapy; and multidisciplinary approaches including neoadjuvant systemic therapy in conjunction with surgery for locally advanced disease. The program evaluates and treats more than 1,000 new patients annually and performs 600 radical prostatectomies per year. During the outpatient rotation, residents become facile at transrectal ultrasound-guided biopsy.

**Bladder cancer** – Our physicians perform more than 600 transurethral resections of the bladder each year. Cleveland Clinic is a leader in the field of robotic and laparoscopic radical cystectomy, having performed more than 200 such cases as of 2009. Residents also become adept at the full range of options for urinary diversion, with an emphasis on orthotopic neobladders.

**Testis cancer** – Residents are educated in the management of testis cancer on a multidisciplinary level. An average of 20 to 30 retroperitoneal lymph node dissection procedures are performed each year.

**Adrenal surgery** – The majority of the adrenalectomies performed here are performed laparoscopically. Residents are trained in the surgical and medical management of adrenal masses manifesting as Cushing’s syndrome, pheochromocytoma, hyperaldosteronism and adrenal cortical carcinoma.
Laparoscopic and Robotic Surgery
As a high-volume center for laparoscopic urologic surgery, we have continued to remain on the forefront in developing new techniques and expanding the scope of minimally invasive surgery. Residents participate in laparoscopic adrenalectomy, partial nephrectomy, radical nephrectomy, renal cryoablation, radical cystectomy, prostatectomy, pyeloplasty, ileal ureter transposition, orchidopexy, sacrocolpopexy and ureterolysis. Robotic surgery is being utilized for prostatectomy, cystectomy and pyeloplasty procedures.

Renal Transplantation
Since the first kidney transplant in 1963 at Cleveland Clinic, the institute has performed more than 3,500 renal transplants. Residents spend four months over three different years learning technique and principles of renal transplantation, a service run entirely by staff of the Glickman Urological & Kidney Institute. During this rotation, residents perfect skills in vascular anastomosis, ureteroneocystotomy, cadaveric organ procurement, living donor open and laparoscopic nephrectomy, pancreas transplantation, immunosuppressive protocols, and evaluation of patients with end-stage renal disease.

Prosthetics and Reconstruction
Glickman Urological & Kidney Institute faculty possess special expertise in complex urethral reconstruction for stricture disease. Using plastic surgery principles, about 80 such procedures per year are performed using a combination of flaps, buccal mucosal grafts and simpler anastomotic procedures. Additionally, complex fistula repairs are undertaken, often in conjunction with the Department of Colorectal Surgery. A high volume of patients with Peyronie’s disease or congenital penile curvature are seen for tunical plication procedures. On average, 200 prosthetic surgeries, including inflatable penile prostheses, artificial urinary sphincters and revisions, are done each year. Residents are educated in the nonsurgical management of erectile dysfunction with faculty possessing expertise in this field.

Voiding Dysfunction and Female Urology
More than 300 vaginal sling procedures are performed each year at Cleveland Clinic. More than 2,000 urodynamics procedures are performed each year in our dedicated urodynamics facility by specially trained nurses. Residents and faculty interpret studies in the management of patients with incontinence, neuro-urological disorders, or other types of voiding dysfunction. A number of patients with pelvic organ prolapse are seen, and about 250 surgical procedures, including laparoscopic sacrocolpopexy, are performed each year for repair of vaginal prolapse. Interstim neurostimulator devices for refractory overactive bladder or chronic pelvic pain are being used in increasing numbers.
Endourology and Stone Disease
Residents participate at both the main campus and outpatient surgery centers in the surgical management of patients with renal calculus disease. On average, 900 procedures for renal calculi are performed each year, including complex procedures on patients with solitary kidneys, morbid obesity or anatomically displaced kidneys. The Glickman Urological & Kidney Institute also utilizes laparoscopic and open pyeloplasty, with about 60 adult and pediatric patients treated yearly for ureteropelvic junction (UPJ) obstruction. Additional patients are treated endoscopically with endopyelotomy for UPJ obstruction. Residents are trained in all aspects of stone treatment, including gaining percutaneous access in the operating room.

Benign Prostatic Hyperplasia
At the junior level, residents become well-versed in performing photoselective vaporization of the prostate procedures with the GreenLight™ laser for BPH as well as the more traditional transurethral resection of the prostate using the Gyrus instrument with saline irrigation.

Pediatric Urology
Residents work one-on-one with our pediatric urologists in outpatient management of urological issues and are well-trained in performing such procedures as hypospadias repair, open and laparoscopic pyeloplasty, open and laparoscopic orchidopexy, surgical and endoscopic management of vesicoureteral reflux, surgical management of Wilms’ tumor and testis cancer, hernia/hydrocele repair, and circumcision.

Male Infertility
Residents are trained in the thorough evaluation of men presenting with infertility and instructed in surgical techniques for varicocele ligation, microsurgical vasovasostomy and epididymo-vasostomy, and testicular sperm aspiration. The institute also houses a highly sophisticated andrology laboratory and active Center for Advanced Research in Human Reproduction, Infertility and Sexual Function. During internship, each resident takes a one-week dedicated microsurgery course with instruction on animal models.
All urology residents are encouraged to take advantage of the opportunity to perform both clinical and basic research studies during their training. Residents perform such projects under the close supervision of one or more members of the attending staff, who assist in preparing manuscripts for publication. Residents also are encouraged to submit these papers for presentation at regional or national urology meetings. Residents presenting at national conferences are provided funds for travel during all years.

The Lerner Research Institute, a complex of laboratories, classrooms, libraries and multimedia centers, has been designed to provide a dynamic center for Cleveland Clinic’s research and education activities. The Glickman Urological & Kidney Institute has several basic research laboratories where residents develop their scientific skills during the 12 months of the fourth year. These include:

The Novick Center for Clinical and Translational Research facilitates interaction between researchers and clinicians across the departments of nephrology and urology. It also seeks to promote clinical and translational research and to help assure compliance with all federal and institutional regulations. The center allows for the necessary and efficient pooling of resources within the Glickman Urological & Kidney Institute. Staff members work closely with the Lerner Research Institute to be sure regulations and mandates are followed and to review every existing and future clinical study for soundness, budget and required resources.

The urologic oncology basic research laboratories are molecular biology facilities devoted to the immunobiology of renal cell carcinoma. Ongoing studies include impaired activation of NFkB in T cells from patients with renal cell carcinoma, T cell-induced apoptosis in renal cell carcinoma, immunological effects of sunitinib, and chemokine gene expression in renal cell carcinomas.

Basic research in prostate cancer includes studies on XMRV and viral causes of prostate cancer as well as the role of PSA and prostate-specific membrane antigen to guide targeted therapies in prostate cancer.

There are also ongoing studies for bladder cancer investigating intravesical immune-modulating gene therapy in an orthotopic, noninvasive bladder cancer model.

The transplant immunology laboratory is focused on defining T cell-mediated inflammatory responses following organ transplantation. The understanding of mechanisms by which T cells are induced to mediate inflammation is essential to the design of practical clinical strategies to inhibit the priming of alloreactive T cells and to maintain allograft acceptance in transplant recipients.

The Center for Advanced Research in Human Reproduction, Infertility and Sexual Function is performing extensive studies on reactive oxygen species formation in human sperm and their role in male infertility. Additional areas of investigation include assessment of human sperm function after cryopreservation and methods of improving post-thaw semen quality in cancer patients.

The neurology/urology laboratory and Center for Female Pelvic Medicine are recognized nationally as an elite group focused on characterizing the regulatory mechanisms of benign bladder conditions and pelvic floor injury and repair. Areas of investigation include biomechanical properties of the bladder and pelvic floor, diabetic cystopathy, inflammatory diseases of the bladder, and stem cell homing after pelvic injury.

The minimally invasive and robotic research laboratory is focused on identifying new minimally invasive and noninvasive treatments for urologic disease and transferring these technologies to the operating room. Research areas include intraoperative imaging techniques, transcutaneous CT- and ultrasound-guided surgery, and development of new laparoscopic technologies.
Arts and Entertainment

University Circle, Cleveland’s cultural center, has one of the greatest concentrations of museums and cultural activities in the country. Highlights of arts and entertainment in Cleveland include:

- Cleveland Museum of Art
- Cleveland Orchestra
- Blossom Music Center, Quicken Loans Arena, Wolstein Center and Cleveland Browns Stadium hosting big-name rock, pop, country and jazz performers
- Cleveland Play House and Playhouse Square — home to the Cleveland Opera, Great Lakes Theater Festival and touring Broadway shows
- Rock and Roll Hall of Fame and Museum
- Great Lakes Science Museum, with the 320-seat Cleveland Clinic OMNIMAX Theater

Nightlife

For Cleveland nightlife, visit the Warehouse District, where former warehouses have been converted into modern apartments and office buildings, with elegant and trendy restaurants, nightclubs and bars at street level. Or visit the brick-lined East Fourth Street district, with gourmet dining and jazz venues, a comedy club and martini bars.

Recreation and Sports

The Cleveland Metroparks Zoo and Cedar Point Amusement Park offer summer fun. Lake Erie provides entertainment for sailing enthusiasts, boaters, swimmers and fishermen. The Cleveland Metroparks’ 16 nature reserves encircling the city, along with the Cuyahoga Valley National Park, offer running, hiking and biking trails and many outdoor activities. Winter in Cleveland unveils cross-country and downhill skiing, tobogganing and snowmobiling. Major league sports are represented by the Cleveland Browns, Cleveland Indians and Cleveland Cavaliers.

Little Italy

Many around the city enjoy the atmosphere of Cleveland’s Little Italy, located five minutes from Cleveland Clinic’s main campus. This unique section of town features restaurants, shops, art galleries and more.
For more information about the Urology Residency Training Program, contact:

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